Aviation Investigation Final Report

Location:	SALEM, Indiana	**Accident Number:**	CHI00LA239
Date & Time:	August 4, 2000, 13:30 Local	**Registration:**	N87V
Aircraft:	KOLLIER PITTS S1C	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that while practicing aerobatics, he intentionally entered an inverted flat spin at 2,800 feet above ground level. The pilot reported that once the airspeed slowed to 80 mph, he added full forward stick and right rudder to enter the spin. He then added stick pressure in the direction of the spin and added power to make the spin flatten out. After one and a half turns, he neutralized the stick pressure and brought the power to idle. He then attempted to recover from the spin by adding left rudder followed by aft stick pressure. The pilot reported that although he did not recognize it at the time, he believes in hindsight, that the airplane then transitioned to a very nose low, accelerated upright spin in the same direction as the inverted spin. He reported that after approximately 15 turns, when he was unable to recover from the spin, he decided to let go of the flight controls. He reported that the spin remained steady and he still believed that he was inverted. He reported that just prior to impacting the terrain, he added right rudder and forward stick pressure. According to the pilot, the spin stopped with the airplane in a nose low attitude. The pilot reported that he added back stick pressure to raise the nose. The airplane impacted the ground in an upright attitude at high velocity after which it nosed over.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot failed to maintain control of the airplane during an intentional inverted flat spin and the initial control inputs he used in an attempt to recover were improper. A factor associated with the accident was the pilot became disoriented during the maneuver.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING

Findings
1. AEROBATICS - INTENTIONAL - PILOT IN COMMAND
2. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
3. (F) SPATIAL DISORIENTATION - PILOT IN COMMAND
4. (C) REMEDIAL ACTION - IMPROPER - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

On August 4, 2000, at 1330 central daylight time, a Kollier Pitts S1C, N87V, operated by an airline transport rated pilot, collided with the terrain while performing aerobatic maneuvers in Salem, Indiana. The pilot received minor injuries and the airplane was substantially damaged. The 14 CFR Part 91 personal flight was operating in visual meteorological conditions without a flight plan. The flight originated from the Salem Municipal Airport, at 1320 cdt.

The pilot reported that after takeoff, he climbed to 2,800 feet above ground level (agl). He reported that he performed an inside snap roll, rolled inverted to check and make sure his harness was secure, then he performed 2 outside snap rolls, followed by 1 rolling 360 degree turn at 2,500 feet agl.

The pilot reported that he then climbed back up to 2,800 feet agl to practice an inverted flat spin. He reported he climbed inverted and as the airspeed reached 80 miles per hour, he reduced the power to idle. He reported he then added full forward stick and right rudder to enter the spin. He stated that the spin entry was normal. He reported he added stick pressure in the direction of the spin and added power to make the spin flatten out. After 1 1/2 turns, he neutralized the stick pressure and brought the power to idle. He then attempted to recover from the spin by adding left rudder followed by aft stick pressure. The pilot reported that although he did not recognize it at the time, he believes in hindsight, that the airplane then transitioned to a very nose low, accelerated upright spin in the same direction as the inverted spin. He reported that after approximately 15 turns, when he was unable to recover from the spin, he decided to let go of the flight controls. He reported that the spin remained steady and he still believed that he was inverted. He reported that just prior to impacting the terrain, he added right rudder and forward stick pressure. According to the pilot, the spin stopped with the airplane in a nose low attitude. The pilot reported that he added back stick pressure to raise the nose. The airplane impacted the ground in an upright attitude at high velocity after which it nosed over.

Pilot Information

Certificate:	Airline transport	**Age:**	39,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Center
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	April 7, 2000
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	5025 hours (Total, all aircraft), 30 hours (Total, this make and model), 3775 hours (Pilot In Command, all aircraft), 100 hours (Last 90 days, all aircraft), 50 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	KOLLIER	**Registration:**	N87V
Model/Series:	PITTS S1C PITTS S1C	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	1011
Landing Gear Type:	Tailwheel	**Seats:**	1
Date/Type of Last Inspection:	January 5, 2000 Annual	**Certified Max Gross Wt.:**	1050 lbs
Time Since Last Inspection:	25 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	701 Hrs	**Engine Manufacturer:**	Lycoming
ELT:		**Engine Model/Series:**	O-320-A2B
Registered Owner:	CHARLES R. MORGAN	**Rated Power:**	150 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 3000 ft AGL	**Visibility**	7 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:		**Temperature/Dew Point:**	29°C
Precipitation and Obscuration:	N/A - None - Haze		
Departure Point:	(I83)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	13:20 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	
Runway Length/Width:		**VFR Approach/Landing:**	

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	38.599285,-86.090629(est)

Administrative Information

Investigator In Charge (IIC):	Sullivan, Pamela
Additional Participating Persons:	ROBERT A NESTER; INDIANAPOLIS , IN
Original Publish Date:	May 18, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=49916